

Original Article

Repeated peripheral alcohol injection is an effective treatment of Trigeminal Neuralgia in non-drug compliance patients

ABSTRACT

Introduction: Trigeminal neuralgia (TN) is an uncommon disorder seen in dental and neurologic practice, which presents with brief lancinating pain in the face, in the area distributed by the trigeminal nerve. The wide ranges of treatments currently used for TN are ample evidence that there is no simple answer to how it should be managed.

Purpose: In this study, we want to evaluate, if repeated peripheral alcohol injection is an effective treatment of TN patients.

Material and Methods: Retrospective data analysis of patients treated with peripheral alcohol injections from November 2011 to July 2017 were conducted. We selected the patients who reported at least three times for alcohol injection and duration of pain relief recorded as reported by patients.

Results: Effects of 96% absolute alcohol injection ranging from 13 to 15 months pain relief, but in second or third time, this duration was decreased to 11–12 months, whereas no much significant complication were observed.

Conclusion: Even single time neurectomy is not permanent cure, so patients choose less invasive option such as peripheral alcohol injections in repeated use instead of a surgical option.

Keywords: Alcohol, carbamazepine, neuralgia, neurectomy

INTRODUCTION

Trigeminal neuralgia (TN) is an uncommon disorder seen in dental and neurologic practice that presents with brief lancinating pain in the face, in the area distributed by the trigeminal nerve. The disease is also known by less familiar names such as “Fothergill’s disease” or “tic douloureux.”^[1] A single attack may last for a few seconds but may also present in clusters of variable intensity for 2 min in a paroxysmal fashion.^[2,3]

The uncertainty of sudden pain even taking medication sometimes patients found helpless and may commit suicide. Although the effective medical and surgical therapies for the disorder exist with certain limitations. The wide ranges of treatments currently used for TN are ample evidence that there is no simple answer to how it should be managed. Opinions can differ greatly regarding the best treatment for

this condition. Neurectomy is probably the oldest recorded surgical procedure for TN. Conventionally, it is only when

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medications fail, or severe side effects develop in those patients are offered surgical options.^[4]

The goal of any form of the treatment for TN is a long-term relief of pain. While medications provide effective management for many TN patients, medical therapy is often not a permanent solution of this problem. Fortunately, for TN patients, there are several surgical procedures available if medications no longer provide the desired results.

The management of TN other than surgical is peripheral nerve injections of different chemical agents such as chloroform, boiling water, glycerol, and phenol. Peripheral alcohol injections have also been used, preferably during the first attack, or if the patient is very old. Patients with serious medical morbidity who cannot undergo invasive surgical procedures safely may benefit from an injection of alcohol into the painful peripheral trigeminal nerve branch.^[5] In this study, we want to evaluate the effect of absolute alcohol injection in neuralgic patients regarding the duration of pain relief and its complication in repeated use.

Aims and objective

- In this study, we want to evaluate the effect of absolute alcohol injection in neuralgic patients regarding the duration of pain relief and its complication
- If absolute alcohol injection is a better treatment option in neuralgia patients in repeated use for long duration pain relief?

MATERIALS AND METHODS

Individuals for the present study were selected from among the patients treated for TN, India, from November 2009 to July 2017. Patients were selected randomly irrespective of age, sex, caste, creed, and socioeconomic status. Data were collected from the patient's record, regarding the selected treatment option and how long pain was relieved.

Absolute 96% absolute alcohol injection was given 1 ml for inferior alveolar nerve, 0.5 ml for infraorbital nerve, 0.5 ml for mental nerve, and 0.5 ml for supraorbital nerve.

The duration of pain recorded when patients have again reported for the alcohol injection.

RESULTS

Our study assessed the effectiveness of peripheral alcohol injections in the management of TN for which a retrospective case audit of patients who received peripheral alcohol injections in 2009 to March 2017 [Table 1]. Effects of peripheral alcohol injection ranging from 13 to 15 months pain relief, but in second or third time, this duration was decreased to 11–12 months [Table 2]. Whereas no much significant complication were observed [Table 3].

Statistical analysis

The small number of neuralgic patients precluded statistical analysis.

DISCUSSION

As a result, patients and practitioners encounter considerable uncertainty when making treatment decisions in TN patients. Medication is often a first line of the treatment; conventionally, it is only when medications fail, or severe side effects develop that patients are offered surgical options.^[6] Medicinal therapy is initially effective for most patients with TN. Unfortunately, about half of the TN sufferers eventually become dissatisfied with medical therapy, due to incomplete control of pain- or drug-related side effects that are almost always experienced. Common side effects include drowsiness, diplopia, ataxia, and hyponatremia.

In search of better pain relief, peripheral alcohol injections continue to have a better role in the management of TN. Although alcohol injection is essentially a simple technique, the alcohol must be injected very precisely as it is highly toxic. Stookey and Ransohoff^[7] combined several reports totaling 1500 patients and found the length of pain relief to be 12 months or less. Repeated injections were more difficult due to fibrosis. The study reported that no significant pain relief duration between the first block and repeated block.^[8] In our study, we observed that first-time use of absolute alcohol provide 13–15-month pain relief, but in the second time, the period of pain relief was 11–12 months, but the third time, it was <11 months. The reason of less effectiveness in subsequent injections may be due to fibrosis. As other study also reported the disadvantage of transient burning sensation on injection and reduced effectiveness with repeated administration due to the dense fibrotic tissue around the nerve region reducing penetration of the fluids^[8] other side effect such as diplopia and sensory loss reported in literature, we observe some

Table 1: Patients with different type of trigeminal neuralgia treated with alcohol injection

Total number of patients	Inferior alveolar nerve	Infraorbital nerve	Mental nerve	Supratrochlear/supraorbital nerve
100 patients	46 patients	30 patients	20 patients	4 patients

Table 2: Duration of pain relief

Duration of effect (after absolute alcohol injection)	IAN	ION	MN	ST/SO nerve
1 st injection	15-17 months	16-17 months	13-15 months	13-15 months
2 nd injection	11-13 months	11-13 months	9-11 months	8-10 months
3 rd injection	8-10 months	10-11 months	8-10 months	8-9 months

IAN: Inferior alveolar nerve, ION: Infraorbital nerve, MN: Mental nerve,
ST: Supratrochlear, SO: Supraorbital

Table 3: Complications

Number of patient	Site of injection	Complication
6	IAN	Local site ulceration
2	ION	Unilateral upper lip weakness
1	MN	Local site ulceration
1	ST/SO	Reversible upper eyelid weakness

IAN: Inferior alveolar nerve, ION: Infraorbital nerve, MN: Mental nerve,
ST: Supratrochlear, SO: Supraorbital

complication such as local site ulceration sensory nerve weakness, but all complications were reversible.^[4]

As compare to alcohol injection, neurectomy provides better pain relief. Quinn^[9] reported a retrospective case series of neurectomies and noted a pain relief period of 24–32 months. Grantham and Segerberg^[10] also reported a case series of neurectomies and noted, an average pain relief period of 33.2 months. Even single time neurectomy is also not permanent cure, so patients choose less invasive option such as peripheral alcohol injections in repeated use instead of a surgical option.

CONCLUSION

Alcohol injection and surgical options may be considered for patients who do not respond to medical management. Unfortunately, no any treatment is providing permanent pain relief; however, we should explain all treatment option with all long-term complication and duration of pain relief so that patient may choose their treatment option. Thus, due

to the avoidance of repetition of surgery, patients choose less invasive option such as peripheral alcohol injections in repeated use.

Still, it is a challenge for patients and doctors both for seeking better and better treatment option.

Thus, furthermore, study and research work required for seeking better treatment option.

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Conflicts of interest

There are no conflicts of interest.

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